

Niels Bohr: Both Sides, Now ... or Never

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Niels Bohr was a great physicist who was universally admired and respected by his peers. Robert Oppenheimer said “it would be hard to exaggerate how much I venerate Bohr.” Albert Einstein wrote to Bohr in 1920, “Not often in life has a human being caused me such joy by his mere presence as you did.”^[1] Paul Dirac described Bohr as “the Newton of the atom” and “the deepest thinker I have ever met.”^[2]

Bohr made pioneering contributions to the understanding of atomic structure and quantum physics. Bohr also conceived the philosophical principle of complementarity, which he said applied to all important questions including physics. Edward Teller wrote:

Bohr was the embodiment of complementarity, the insistence that every important question has opposite sides that appear to be mutually exclusive; understanding of the question becomes possible only if the reality on both sides is acknowledged.

Bohr’s theory applied to important questions in general, not just those formulated in physics. He often said that every 18-year-old should master that idea, because without it, he or she would be incompletely equipped for life.^[3]

This article shows that, unfortunately, Bohr failed to apply his complementarity principle to understanding the origins and aftermath of World War II. For Bohr, the Allied position was always the only true reality.

Bohr Despises Adolf Hitler

Niels Bohr was incensed when Adolf Hitler passed a law in April 1933 preventing Jews from holding jobs as civil servants in Germany. This law caused well over a thousand German Jews in academic posts to begin looking for positions abroad. Bohr was tireless in his efforts to find places for Jewish physicists throughout the 1930s. He wrote letters, headed committees, raised funds, and sent friends to scout job possibilities in remote places around the world.^[4]

Bohr was even angrier when Germany invaded his native Denmark. Germany’s decision to invade Denmark was based on the plan of Gen. Nikolaus von Falkenhorst, who concluded that it would be desirable to occupy Denmark as a “land bridge” to Norway. Denmark quickly surrendered to German forces on April 9, 1940.^[5]

Bohr did not know, or ignored the fact, that Germany invaded Denmark and Norway because German intelligence indicated the Allies were planning to invade Norway. A German diplomat’s report on March 30, 1940 stated that the Allies would launch operations in northern Europe within a few days. German intelligence also knew the Allied Supreme War Council planned to mine Norwegian waters, and these operations began on April 8, 1940. These British mining operations were a clear violation of Norway’s neutrality that constituted an act of war.^[6]

Winston Churchill acknowledged the illegal British mining of Norwegian waters:

Between 4.30 and 5 A.M. on April 8 four British destroyers laid our minefield off the entrance to West Fiord, the channel to the port of Narvik. At 5 A.M. the news was broadcast from London, and at 5.30 a note from His Majesty's Government was handed to the Norwegian Foreign Minister. The morning in Oslo was spent in drafting protests to London.[\[7\]](#)

Despite this British aggression, Bohr always condemned Hitler for occupying Denmark, and for starting World War II. Robert Oppenheimer, who spoke at length with Bohr at Los Alamos, explained Bohr's position: "Bohr spoke with contempt of Hitler, who with a few hundred tanks and planes had tried to enslave Europe for a millennium." Oppenheimer said Bohr encouraged the scientists at Los Alamos to work on the atomic bomb to prevent such aggression from ever happening again.[\[8\]](#)

Bohr wrote an open letter in 1950 to the United Nations, "When the war ended and the great menaces of oppression to so many peoples had disappeared, an immense relief was felt all over the world."[\[9\]](#) Bohr in this letter implied that Germany had attempted to oppress people in other nations.

However, as documented in the first four chapters of my book *Germany's War*, Germany and Hitler had not wanted war. The Soviet Union, the United States and Great Britain were primarily responsible for starting World War II.[\[10\]](#) Bohr, who claimed to apply his complementarity principle to all aspects of life, apparently never considered this reality as even a remote possibility.

Bohr's Wartime Activities

Bohr, who was one-half Jewish, traveled from German-occupied Copenhagen to Sweden on September 30, 1943 to avoid being deported to a German concentration camp. Bohr flew to London a few days later where he was informed by British scientists of the massive American and British effort to build atomic bombs. Bohr soon became involved with the political questions as to what would happen after atomic bombs became reality.[\[11\]](#)

Bohr applied his complementarity principle to the building of atomic bombs. Bohr thought that because the destructive power of atomic bombs would make war unendurable, this could be a blessing in that it could force international cooperation among nations.[\[12\]](#) Bohr's son Aage wrote:

My father felt more and more strongly what great possibilities the situation offered of finding new ways for co-operation between the nations. In order to take advantage of this opportunity, however, it would be of decisive importance to create, at an early stage, an understanding of the implications of the development. Above all it was essential to reach a mutual relationship of trust, and therefore an "East-West" contact had to be made on these problems as soon as possible. He felt that if the matter was raised with the Soviet Union, and they were told in confidence of the revolutionary developments that faced us all, and of the vital need for a common effort to safeguard ourselves against the misuse of these new methods of destruction, there might be hope of an unprejudiced discussion about measures of control. Furthermore, it seemed likely that the Russians were not entirely ignorant of the fact that a large atomic energy project was under way in the USA, and if nothing was said about it, distrust might deepen and make it more difficult to create a basis for co-operation.[\[13\]](#)

Bohr traveled to the United States in December 1943 and discussed his ideas with British Ambassador Lord Halifax and President Roosevelt's close friend, Supreme Court Justice Felix Frankfurter. Both of these men were impressed with Bohr's ideas. Frankfurter informed President Roosevelt of the

perspectives outlined by Bohr. Roosevelt supposedly became so concerned that it “worried him to death” to find the right way out.[\[14\]](#)

Bohr eventually met with Winston Churchill in May 1944 to discuss his ideas. By all accounts, this meeting was a complete failure. Churchill was preoccupied with the upcoming Normandy invasion, and was not in the mood to listen to Bohr. When Bohr asked Churchill at the end of their meeting if he could write him, Churchill rudely answered, “It would be an honor to receive a letter from you, but not about politics.”[\[15\]](#)

Bohr’s meeting with Roosevelt later that year in Washington, D.C. appeared to be more successful. Roosevelt expressed interest in Bohr’s ideas and spoke enthusiastically of “a new era in human history.” Roosevelt told Bohr that he would take up the whole matter with Churchill in the course of their forthcoming meeting in Quebec. Bohr eagerly awaited the meeting between Roosevelt and Churchill to see if his ideas might be implemented.[\[16\]](#)

Roosevelt and Churchill neglected Bohr’s ideas at their meeting. As at their Casablanca Conference, Roosevelt and Churchill had great fun together discussing the war.[\[17\]](#) They signed a memorandum containing a paragraph saying that steps should be taken to prevent Bohr from letting any kind of information leak to the Russians. Churchill said to Lord Cherwell when he returned to London:

The President and I are much worried about Professor Bohr. How did he come into this business? He is a great advocate of publicity. He made an unauthorized disclosure to Chief Justice Frankfurter who startled the President by telling him he knew all the details. He said he is in close correspondence with a Russian professor, an old friend of his in Russia to whom he has written about the matter and may be writing still. The Russian professor has urged him to go to Russia in order to discuss matters. What is all this about? It seems to me Bohr ought to be confined or at any rate made to see he is very near the edge of mortal crimes.[\[18\]](#)

Fortunately, British scientists and politicians came to Bohr’s rescue and convinced Churchill not to take action against Bohr.[\[19\]](#)

Bohr’s Postwar Activities

Bohr continued to agitate for international control of atomic bombs after the war. When a Soviet physicist visited his institute in November 1945, Bohr gave the physicist the same lecture he had given to Roosevelt and Churchill:

All mankind must understand that with the discovery of atomic energy the fates of all nations have become very closely intertwined. Only international cooperation, the exchange of scientific discoveries, and the internationalization of scientific achievements, can lead to the elimination of wars, which means the elimination of the very necessity to use atomic bombs. This is the only correct method of defense...Either reason will win, or a devastating war, resembling the end of mankind.[\[20\]](#)

Since the Soviet physicist sent a record of this interview to Josef Stalin, Bohr had communicated his views to all three major Allied leaders. However, Stalin was no more receptive to Bohr’s ideas than Roosevelt or Churchill. Stalin was committed to building nuclear weapons after World War II ended.[\[21\]](#)

Niels Bohr continued to meet with politicians after World War II to advocate an open world and international cooperation. Winston Churchill visited Copenhagen and met with Bohr in 1950. While Churchill and Bohr still had divergent viewpoints, Churchill made sure this time that their meeting ended amicably. After a walk in the park, Churchill extended his hand in friendship to Bohr and referred to Bohr as “dear friend.” [22]

On June 9, 1950, Bohr’s son Aage delivered Bohr’s “open letter” to the United Nations in New York. Bohr also assembled representatives of the world press at his honorary residence at Old Carlsberg (now the Carlsberg Academy) and handed each of them a copy of his letter. Bohr’s letter said that the atomic bomb’s existence in a divided world was now an imminent threat. A new war between the great powers could end in world annihilation, and international cooperation was imperative. The world reaction to Bohr’s letter was negligible. [23]

Bohr traveled to Israel in 1953 and had discussions with Israeli Prime Minister David Ben-Gurion. Bohr was also awarded the Ford Foundation’s “Atoms for Peace” prize in 1957 in the presence of U.S. President Dwight Eisenhower. Bohr accepted this prize in the hope that the attention attracted by the award would stimulate interest in his ideas and the drive for openness, which formed the grounds on which this award was based. [24]

Bohr did not appreciate the criminal nature of the political leaders he was talking to. Winston Churchill, for example, rejected numerous peace offers from Hitler during the war and had supported the saturation bombing of German cities such as Dresden. Dwight Eisenhower had overseen the mass murder of hundreds of thousands of German prisoners-of-war after World War II. [25] David Ben-Gurion was the leader of a nation formed by the illegal ethnic cleansing of approximately 750,000 indigenous Palestinians, [26] even as this same nation covertly embezzled the materials and technology for its own illegal nuclear-weapons program. Bohr was naïve to expect that such murderous and psychopathic political leaders would be persuaded by his ideas of openness and peaceful cooperation.

Bohr’s Relationship with Heisenberg

Niels Bohr was also unable to communicate effectively with German physicist Werner Heisenberg. Heisenberg traveled to Copenhagen in September 1941 hoping that he could obtain Bohr’s help in reaching an international agreement among physicists not to build atomic bombs during the war. Bohr did not want to pursue Heisenberg’s suggestion, and apparently did not trust Heisenberg’s motives. Germany had driven many of its leading scientists into exile before the war, and it seemed to Bohr that Heisenberg was seeking to negate this Allied advantage in the development of atomic bombs. [27]

When Bohr and Heisenberg met in August 1947 at Bohr’s country home in Denmark, the two physicists completely failed to agree on what they had said to each other during the war. They eventually decided not to discuss what was said during Heisenberg’s 1941 visit to Copenhagen. The friendship of Werner Heisenberg and Niels Bohr, once so close and fruitful, was never fully revived. They maintained a polite and cordial relationship, but their close bond of friendship ended after World War II. [28]

Carl Friedrich von Weizsäcker, Heisenberg’s friend and protégé, knew that Heisenberg suffered greatly from his failure to reach understanding with Bohr. Weizsäcker was sure the problem was simply one of misunderstanding. However, when Weizsäcker in 1950 broached the subject with Bohr of what

Heisenberg had meant in their 1941 conversation, Bohr cut Weizsäcker off. Bohr brooked no more talk of what Heisenberg had meant to say to him during the war.^[29]

As with other aspects of World War II, Niels Bohr refused to apply his complementarity principle to understanding Heisenberg's intentions. Edward Teller wrote: "I believe there is a deep disagreement between Bohr's refusal to listen to Heisenberg's point of view and Bohr's general [complementarity] principles...On the basis of his one-sided view, Bohr died without making a rapprochement with his most-talented and devoted collaborator."^[30]

Conclusion

Although war had shattered their close friendship, Werner Heisenberg said he would always love Bohr. Robert Oppenheimer said it was Bohr's wisdom and goodness which won his heart at Los Alamos.^[31] Despite his wisdom and goodness, Bohr was never able to see anything except the Allies' partisan version of the war. Bohr, who repeatedly taught the importance of his complementarity principle to all important questions, never applied this principle to understanding the origins and aftermath of World War II.

Endnotes

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^[2] Farmelo, Graham, *The Strangest Man: The Hidden Life of Paul Dirac, Mystic of the Atom*, New York: Basic Books, 2009, p. 120.

^[3] Teller, Edward, *Memoirs: A Twentieth-Century Journey in Science and Politics*, Cambridge: Mass.: Perseus Publishing, 2001, pp. 232-233.

^[4] Powers, Thomas, *Heisenberg's War: The Secret History of the German Bomb*, New York: Alfred A. Knopf, 1993, pp. 45, 185.

^[5] Keegan, John, *The Second World War*, New York: Viking Penguin, 1990, p. 50.

^[6] Lunde, Henrik O., *Hitler's Pre-Emptive War: The Battle for Norway, 1940*, Philadelphia and Newbury: Casemate, 2010, pp. 34, 85-86, 95-96.

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^[8] Rhodes, Richard, *The Making of the Atomic Bomb*, 25th Anniversary Edition, New York: Simon & Schuster, 2012, p. 524.

^[9] Rozental, S. (editor), *Niels Bohr: His Life and Work as Seen by His Friends and Colleagues*, Amsterdam: North-Holland Publishing Company, 1967, p. 346.

^[10] Wear, John, *Germany's War: The Origins, Aftermath and Atrocities of World War II*, Upper Marlboro, Md.: American Free Press, 2014.

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- [12] *Ibid.*, pp. 238-239.
- [13] Rozental, S. (editor), *Niels Bohr: His Life and Work as Seen by His Friends and Colleagues*, Amsterdam: North-Holland Publishing Company, 1967, p. 201.
- [14] Blaedel, Niels, *Harmony and Unity: The Life of Niels Bohr*, Madison, Wis.: Science Tech, Inc., 1988, p. 222.
- [15] *Ibid.*, p. 223.
- [16] *Ibid.*, pp. 223-224.
- [17] Fish, Hamilton, *FDR The Other Side of the Coin: How We Were Tricked into World War II*, New York: Vantage Press, 1976, p. 116.
- [18] Blaedel, Niels, *Harmony and Unity: The Life of Niels Bohr*, Madison, Wis.: Science Tech, Inc., 1988, p. 224.
- [19] *Ibid.*
- [20] DeGroot, Gerard J., *The Bomb: A Life*, Cambridge, Mass.: Harvard University Press, 2004, p. 129.
- [21] *Ibid.*
- [22] Blaedel, Niels, *Harmony and Unity: The Life of Niels Bohr*, Madison, Wis.: Science Tech, Inc., 1988, p. 243.
- [23] *Ibid.*, pp. 242-243.
- [24] *Ibid.*, pp. 264, 233-234.
- [25] Wear, John, *Germany's War: The Origins, Aftermath and Atrocities of World War II*, Upper Marlboro, Md.: American Free Press, 2014, pp. 169-180, 201-249.
- [26] Pappé, Ilan, *The Forgotten Palestinians: A History of the Palestinians in Israel*, New Haven, Conn.: Yale University Press, 2011, pp. 16-18.
- [27] Powers, Thomas, *Heisenberg's War: The Secret History of the German Bomb*, New York: Alfred A. Knopf, 1993, p. 117-118.
- [28] *Ibid.*, pp. 454-455.
- [29] *Ibid.*, pp. 458-459.
- [30] Teller, Edward, *Memoirs: A Twentieth-Century Journey in Science and Politics*, Cambridge: Mass.: Perseus Publishing, 2001, pp. 232-233.
- [31] Powers, Thomas, *Heisenberg's War: The Secret History of the German Bomb*, New York: Alfred A. Knopf, 1993, p. 462-463.

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